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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,889	04/05/2001	Masahide Wakisaka	N36-131337M/TH	3750

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EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/825,889

Applicant(s)

WAKISAKA ET AL.

Examiner

Hai C Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 17-31 is/are allowed.
- 6) ☒ Claim(s) 8-14 and 16 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 31 October 2002 is: a) ☒ ^{partially} approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to because [amended] Fig. 8 has the reference number "258" (electrode pads for the light-emitting array chips) pointed at a different component of the optical head. The electrode pad "258" should be shown next to the light-emitting array chip (250). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:
 - Page 28, line 9 (Amended paragraph), "365" should read --265--.Appropriate correction is required.

Claim Objections

3. Claims 8, 9 are objected to because of the following informalities:

Claim 8:

- Line 8, "comprising the step" should read --the method comprising the step--;
- Line 9, "eccentric eccentric" should read --eccentric--.

Claim 9:

- Line 6, "comprising the step" should read --the method comprising the step--;

- Lines 7-8, "die-bonding the light-emitting device array chips to a predetermined location on the substrate support member" should read --die-bonding the light-emitting device array chips to the substrate to a predetermined location on the substrate support member--, to clearly indicate that the light-emitting device array chips are die-bonded to the substrate instead of to the substrate support member.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. Claim 8 recites a method for assembling an optical write head, in which a single step of rotating the two eccentric pins is provided, while the assemblage of the remaining components of the optical write head is not indicated. Claim 8, as it is claimed, would be more appropriate if it claims for a method of "adjusting" an optical write head.

- Claim 9 is also rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. Claim 9 recites a method for assembling an optical write head, in which a single step of die-bonding the light-emitting device array chips to a predetermined location on the substrate support member would not produce a complete assemblage of the optical write head since there are a plurality of other components that make up for the optical write head.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 10-12, 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuse (U.S. 5,045,867).

Fuse discloses in Fig. 4 an optical write head in which the light-emitting array chips (LED chip 43) are arranged on a substrate (fiber plate 41) and are mounted directly on a flexible printed circuit sheet (flexible printed circuit FPC 42).

With respect to claims 11 and 12, Fuse teaches the reverse surface of the light-emitting device array chip mount section of the flexible printed circuit sheet (surface of the FPC 42 facing the fiber plate 41 or surface 41a) being disposed in close contact with a member having rigidity (the fiber plate 41 being made of glass), and the flexible printed circuit (FPC 42) being of multilayer type and comprising a resin layer

Art Unit: 2861

(polyimide layer 42c) and a copper foil (42a), and no adhesive being interposed between the resin layer and the copper foil.

With regard to claim 16, the method claim is deemed to be clearly anticipated by functions of the above structures.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuse.

Fuse discloses all the basic limitations of the claimed invention except for the thickness of the flexible printed circuit sheet. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select an optimum value range for the thickness of the flexible printed circuit sheet, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuse in view of Applicant's Acknowledged Prior Art (hereinafter AAPA).

Fuse discloses all the basic limitations of the claimed invention except for the light-emitting array being a self-scan-type light-emitting array.

Regardless, it is old and well known in the printing art to use a self-scan-type light-emitting array as a light source for an optical write head as evidenced by AAPA, which indicates that the light-emitting diode array and the self-scan-type light-emitting array are both commonly used as the main light source for the optical write head.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the self-scan-type light-emitting array as taught by AAPA in the device of Fuse since the self-scan-type light-emitting array is commonly used in the optical write head of an optical printer, and the incorporation of which would involve only routine skill in the art.

Allowable Subject Matter

10. Claims 1-7, 17-31 are allowed.
11. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. Claim 8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.
13. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowance is the inclusion of the limitation, in combination as it is currently recited, that the rod lens array, the substrate

Art Unit: 2861

support member for supporting the substrate on which a plurality of light-emitting device array chips are mounted, and a driver circuit board are each secured directly to a support member constituting the claimed optical write head set forth in claims 1-7. With respect to claim 8, the limitation regarding the two rotatable eccentric pins penetrating through the support member being provided such that the rotation of the two eccentric pins to move the substrate support member adjusts the distance between a light-emission section of the light-emitting device array and the light-incident end face of the rod lens array, is not found taught or suggested by in the prior art made of record. On the other hand, none of the prior art made of record teaches or fairly suggests the equal coefficient of thermal expansion existing between the metallic member and either the rod lens array or the light-emitting device array chips, as it is claimed in combination with respective claims 17 and 18. With respect to claim 21-29, none of the prior art made of record teaches the self-scanning, light-emitting device array chips being provided on a flexible circuit board, which in turn is fixed to a substrate support member, and the substrate support member as well as the rod lens array are fixed on different reference planes to a support member.

Response to Arguments

14. Applicant's arguments with respect to claims 10-14, and 16 have been considered, and are traversed in view of the new grounds of rejection as stated above in this Office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

January 13, 2003